GREENE (C.L.)

A SUGGESTION BEARING UPON THE TREATMENT BY A NEW METHOD OF PERSISTENT VOMITING.

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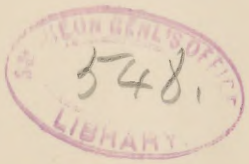
IT is with considerable diffidence that I propose a method of treating a condition that has ever been a reproach to the medical profession. Each year sees patient after patient die from the effects of uncontrollable vomiting, and no means at present within our reach meets our need in the really severe and dangerous cases. The following plan of treatment is crude and undeveloped, and the plan is suggested because I have been vainly awaiting for the past year an opportunity to test its real value, and because, should it prove useful, further delay would be inexcusable. Cases of this kind are uncommon, and my practice is along lines which make them of even greater rarity to me than would be the case if I were in general practice.

It is evident that in casting about for a way to overcome this formidable disease or symptom we must first consider the means through which it proves fatal. These are chiefly two:



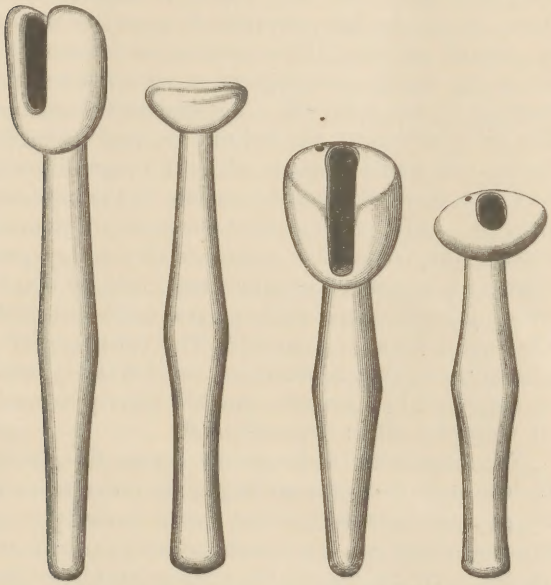
(a) Actual exhaustion from the violent and persistent retching.

(b) Starvation from the lack of power to secure and retain a proper amount of nourishment.

Rectal feeding may partially overcome the latter, but is unsatisfactory and inefficient, while in many cases no known measure will overcome the former. The treatment, to be efficacious, must, therefore, prevent the act itself, and thereby insure the reception and retention of food.

In considering the anatomy and physiology of vomiting we find a suggestion that when followed out may furnish us with a practical means of satisfying our needs in this direction, for whatever may be the cause of the act, whether local or reflex influences excite it, the actual process remains the same, and consists simply (a) in a slight contraction of the muscular fibers of the stomach itself, bringing about closure of the pylorus and opening of the cardiac orifice; (b) a coincident and vigorous contraction of the muscles of the belly-wall; and (c) a rapid and forcible inspiration, with closure of the glottis, which fixes the diaphragm and furnishes a rigid surface, against which the stomach is vigorously compressed and thus relieved of its contents. Now, it appears to be admitted by modern physiologists that unless a stomach be overfull, overflowing in fact, vomiting cannot be brought about in adults without fixation of the diaphragm, and this fixation we find to be dependent upon the rigid ribs and pressure excited by the deep inspiration, and the column of air retained by the closed glottis. If, then, this be correct, and we open the trachea,

our patient certainly cannot vomit, and if we could secure the patency of the trachea by intubation we would soon have a means of partial or complete control.



Showing special tube and ordinary tube. Full size.

Acting upon this theory the modified tube, herewith represented, has been constructed by Tiemann after the plan submitted by me, and would seem to meet the indications in so far as preventing glottic closure is concerned, and it is also intended to prevent complete descent of the epiglottis, which in

the ordinary O'Dwyer tube would close the upper opening and thus defeat its purpose.

It will be noticed that the tube is like that of O'Dwyer's in its general outline, but the head is very much greater in height and there is an opening upon its anterior face, or rather its posterior aspect, as viewed *in situ*. This opening is intended to allow free egress and ingress of air whatever the position of the epiglottis. Applied to the cadaver this tube fully meets the indications, and should be borne, one would suppose, with little more discomfort than would be caused by a tube of the ordinary pattern. O'Dwyer's articles have amply demonstrated the remarkable tolerance of the laryngeal structures, and many instances are cited by him in which tubes of larger caliber were borne with little discomfort for a long period. The tube figured is probably too long in the shank and too heavy, and, as suggested by Tiemann, should properly be made of vulcanite rather than of metal.

The association between the center for glottis-closure and that of vomiting is so intimate as to suggest the possibility that mere prevention of approximation of the bands would prevent the proper carrying out of the remainder of the act, and if this were the case the ordinary tube would be the proper one to use. It would seem probable, however, that any closure of the air-passage through whatever means brought about would admit of the completion of the act, and that it were absolutely necessary to secure a clear passage for the air and thus rob the diaphragm of its rigid base of support.

The applicability of this method of intubation

to severe cases of hiccough or pertussis would also suggest itself.

The process of intubation is so simple and well understood at the present time as to offer no difficulties to most of us, and but little hardship would be inflicted upon a patient by this procedure.

I have experienced much difficulty in securing a substantial basis for the theory advanced, and confess myself doubtful upon several important points. The observations of surgeons upon the occurrence of vomiting after tracheotomy would be of especial value here, and will, it is hoped, be forthcoming, for should the tube fail through improper construction, or for other reasons, I believe that tracheotomy would certainly be a justifiable procedure in the terrible disease or symptom under discussion.

There are many factors that will prevent any very positive statements for or against the proposed treatment until the test of actual experience has been instituted. Dr. Henry Sewell, of Denver, whose work in physiology is widely known, has cautioned me against a too ready acceptance of expressed views of authorities, and calls particular attention to the separate existence of the center of glottic closure and that of the act of vomiting itself, indicating the possibility of independent action, though so far as one can ascertain they are supposed to be invariably in harmony. The want of definite pathologic knowledge, the possibility of overaction of the pharyngeal constrictors, and many other things may be thought of as possible disturbing factors, yet, nevertheless, it will be seen that there are *possibilities* in the line of treatment

submitted, and the opportunity to test it will not be lacking to some of us in the near future. The tubes may be obtained from Tiemann, and the introducer is that ordinarily used.

I conclude with an apology for this necessarily indefinite and incomplete report, and the hope that we shall find something of real utility in the application of intubation or tracheotomy to cases of severe and intractable vomiting.